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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,314	07/15/2003	Mikhail Y. Kachalov	02116	7950

7590 04/18/2005

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EXAMINER

SHAW, CLIFFORD C

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/620,314

Applicant(s)

KACHALOV ET AL.

Examiner

Clifford C. Shaw

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-44 is/are allowed.
- 6) ☒ Claim(s) 45 and 46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0904.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Detailed Action

1.) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.) Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by the Japanese document no. JP1-283367A. The English abstract of the Japanese document no. JP1-283367A clearly discloses a method of resistance welding a sputtering target to a backing plate, satisfying the claim limitations.

3.) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4.) Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Suter (3,511,962) or Lachman (828,033). Either one of Suter (3,511,962) or Lachman (828,033) disclose a method of joining metal members with the steps claimed, including: contacting a projection of a first member to a groove in a second member (see figures 2 and 3 of Suter (3,511,962), note grooves and projections C1, C; see figure 2 of Lachman (828,033), note

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grooves 2, projections 1); conducting an electrical current through electrodes to cause resistance heating of the projections and grooves (see element K in figure 1 of Suter (3,511,962); see column 2, lines 24-30 in Lachman (828,033)); applying a force between the projections and grooves (see elements I and G in figure 1 of Suter (3,511,962); see column 2, lines 24-30 in Lachman (828,033)). The claims differ from either one of Suter (3,511,962) or Lachman (828,033) in calling for partially deforming at least one projection to at least partially fill a groove. This difference does not patentably distinguish over the prior art. Although neither Suter (3,511,962) nor Lachman (828,033) explicitly discuss projection deformation or groove filling, it is considered obvious that these phenomena must take place in the methods of either one of Suter (3,511,962) or Lachman (828,033) because these methods involve resistance welding wherein the projections are necessarily partially molten during the process. This partial melting would obviously result in partial deformation and filling as claimed, thereby satisfying the claims.

5.) Claims 1-44 are allowable over the prior art of record. None of the prior art of record teaches or suggests the method of forming a sputtering target assembly with the steps of claim 1 with the limitations associated with the projections and grooves, the electrical resistance heating, and the partial deformation of projection as is set forth in the claim. None of the prior art of record teaches or suggests a sputtering target assembly with the features set forth in claim 29, especially the limitations associated with the projections and grooves and the resistance heating and mechanical bonding thereof as set forth in the claim. The dependent claims are allowable

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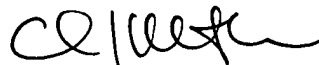
over the prior art of record at least because they depend from allowable independent claims 1 and 29.

6.) The patent to Wiech, Jr. (4,722,824) is cited to show a prior art resistance welding method that includes projections and grooves in the workpieces.

Any inquiry concerning this communication should be directed to Clifford C Shaw at telephone number 571-272-1182. The examiner can normally be reached on Monday through Friday of the first week of the pay period and on Tuesday through Friday of the second week of the pay period.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas G. Dunn, can be reached at 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Clifford C Shaw
Primary Examiner
Art Unit 1725

April 15, 2005